

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**DRAFT STAFF REPORT**

**TENTATIVE ADDENDUM NO. 5 TO CLEANUP AND ABATEMENT  
ORDER NO. 92-01**

**FOR**

**KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL  
COMPANY, SANTA FE PACIFIC PIPELINE PARTNERS, LP, SHELL OIL  
COMPANY, TEXACO REFINING AND MARKETING INC., EQUILON  
ENTERPRISES LLC, EXXONMOBIL OIL CORPORATION**

**MISSION VALLEY TERMINAL  
9950 & 9966 SAN DIEGO MISSION ROAD  
SAN DIEGO, SAN DIEGO COUNTY**

**BY**

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**MARCH 9, 2005**

The purpose of this Staff Report is to provide additional background information and technical details regarding the basis for development of the Findings and Directives in Tentative Addendum No. 5 to Cleanup and Abatement Order 92-01 (Addendum).

## **BACKGROUND**

On March 13, 2002, the Regional Board adopted Time Schedule Order R9-2002-0042 requiring the Dischargers to propose milestone cleanup dates for the restoration of water quality in the portion of the Mission San Diego Hydrologic subarea for the cleanup of all off-property pollution. The required milestone cleanup dates were provided to the Regional Board in the Dischargers' *Final Summary Report* dated January 30, 2004.

## **BASIS FOR FINDINGS AND DIRECTIVES**

The Addendum contains new performance milestones for the off-site remediation system, final cleanup compliance dates for the off-property pollution, technical reports, revisions to the existing Corrective Action Plan (CAP), investigation workplans, and monitoring programs based on information provided by the Dischargers and recommendations from the Regional Board technical consultants, Drs. Paul Johnson and Margaret Eggers. Drs. Johnson and Eggers have served as technical consultants to the Regional Board for the Mission Valley Terminal (MVT) cleanup since December 2003. They are both experts in the field of groundwater pollution remediation (See EOSR Supporting Document No. 5). The final Johnson and Eggers' report, *Comments Regarding the Mission Valley Terminal Remediation Activities and Potential Cleanup Timeline* (Johnson and Eggers Report, See EOSR Supporting Document No. 4), is the technical foundation for the directives and monitoring requirements in the Tentative Addendum. Using their expertise, Drs. Johnson and Eggers performed a technical evaluation of the Dischargers' proposed off-property remediation system and made recommendations to the Regional Board upon the following components of the tentative Addendum:

- A technically viable monitoring program that is necessary to track the progress of groundwater cleanup,
- technically based performance metrics to measure and evaluate the effectiveness of cleanup of groundwater pollution in the off-property area, and
- technically based final cleanup compliance dates for the off-property pollution.

The Regional Board staff reviewed the report and concurs with the recommendations made by Drs. Johnson and Eggers.

Below is the basis for the findings and directives included in the tentative Addendum:

### **Findings:**

**Finding 4:** The milestone cleanup dates submitted by the Dischargers in the 2004 *Final Summary Report* are not aggressive enough to protect and restore the designated beneficial uses

of the groundwater in a timely manner. The off-property pollution can be cleaned up in a shorter time frame if the proposed off-property remediation system performance is optimized to achieve a more aggressive cleanup schedule.

**Basis:** The dischargers proposed the following cleanup dates for the off-property pollution:

- Cleanup of Off-Property Pollution to a Concentration that will not limit the City of San Diego's use of the groundwater – 10 to 29 years (MVT Summary Report, Table 1). The Final Summary Report includes soil vapor extraction (SVE) and groundwater dewatering as the proposed remedial alternative for cleanup and abatement of groundwater pollution in the off-property area of the site [the Final Summary Report (2004)] is available at <http://www.waterboards.ca.gov/sandiego/misc/MVT/mvt.html>).

According to Drs. Johnson and Eggers, “multiple lines-of-evidence suggest that a source zone remediation time frame of about five years is practicable if the SVE system performance is optimized” (Johnson and Eggers Report, Page 5). “Source zone remediation” means removing the petroleum product trapped in the soil to the maximum extent possible with subsurface remediation techniques. Based on the cleanup date for the soil in the source zone, Drs. Johnson and Eggers suggested that the remaining dissolved petroleum product in the groundwater can be reduce to applicable drinking water standards within 8 years of running the optimized remediation system (Johnson and Eggers Report, Page 16).

The City of San Diego (City) Water Department has indicated to the Regional Board that they have plans to develop the aquifer downgradient of the MVT pollution. The City's *Mission Valley Groundwater Desalting Project* report calls for water production well construction and development in 4 years (by 2009). Because of this planned use of the groundwater in the vicinity of the pollution, a more aggressive cleanup approach must be implemented and the existing groundwater pollution must be cleaned up in a shorter time frame than the dischargers have proposed.

**Finding 5:** The groundwater pollution associated with discharges at and from MVT are continuing threats to water quality and must be monitored, contained, and cleaned up. A Quarterly Monitoring Program, a revised Corrective Action Plan, and further soil and groundwater investigations are needed to measure the Dischargers' progress toward containment and to adequately assess the effectiveness of cleanup of the pollution. Additionally, in order to address any new discharges of pollutants from the facility, the Dischargers must report all releases of pollutants from all systems that contain, store, and/or convey petroleum fuel products, wastes, liquids, or vapors.

**Basis:** Because of the importance of the beneficial uses of the groundwater, an aggressive groundwater remediation monitoring program is necessary for the Regional

Board to track and the Dischargers to document progress towards the cleanup milestone and compliance dates. The Monitoring and Reporting Program, Attachment 1 to the tentative Addendum, is a comprehensive monitoring program that will help the Regional Board ensure that adequate progress is being made to achieve the cleanup dates in the tentative CAO Addendum. The remediation monitoring program, recommended to the Regional Board by Drs. Johnson and Eggers, was designed to track the progress of the cleanup in a manner that will indicate when/if additional remediation methods are needed to meet the cleanup compliance dates established in the tentative addendum.

**Finding 6:** The City of San Diego's (City) plans to use the groundwater resources, located downgradient of the groundwater pollution from the MVT, for public drinking water by 2010. In the event that the City builds and operates its proposed groundwater development project, Dischargers should have a Drinking Water Well Protection Contingency Plan to ensure protection of water quality for drinking water supply wells downgradient of the discharger's pollution.

**Basis:** Dischargers may be required to provide the Regional Board with a "Water Replacement Plan" under the authority of Water Code section 13304(h). The Drinking Water Well Protection Contingency Plan (Contingency Plan) is necessary to ensure that the City of San Diego's water project is able to proceed as planned regardless of the progress made on cleanup and abatement of the existing groundwater pollution in the off-property area. The required Contingency Plan will establish a groundwater monitoring network to monitor the pollution located directly upgradient of the City's production well(s), it will require implementation of an active interim cleanup method should the monitoring network indicate that the remaining pollution is threatening the quality of water produced from the City's well(s), and it will include a plan to treat or replace the drinking water should the City's well(s) be impacted by the Dischargers' pollution. The tentative Addendum requires the Dischargers to provide the Regional Board with the Contingency Plan within 60 days of the City's notification to the Dischargers of its installation of a drinking water production well in the vicinity of the MVT pollution.

### **Directives:**

**Directives 1 and 2:** "By **December 31, 2010**, Dischargers shall remove residual light non-aqueous phase petroleum liquid (LNAPL) from subsurface soil and ground water beyond MVT to the extent technically practicable," and "By **December 31, 2013**, Dischargers shall reduce concentrations of dissolved phase petroleum hydrocarbon pollutants in groundwater beyond MVT to levels that are equal to or less than applicable water quality objectives pursuant to the Water Quality Control Plan, San Diego Region ("Basin Plan")."

**Basis:** Drs. Johnson and Eggers have provided the Regional Board with recommended performance metrics and cleanup dates that take into account the nature, magnitude, and complexity of the groundwater pollution from the MVT. The recommended dates are technically feasible and will ensure progress towards cleanup and abatement of residual

groundwater concentrations of pollutants that are equal to or less than the applicable water quality objectives established in the Regional Board Basin Plan. Based on their collective experience and knowledge they have proposed the following cleanup time frames:

- Cleanup of Off-Property Liquid Petroleum Pollution (LNAPL) – 5 years (Johnson and Eggers Report, Page 6).
- Cleanup of Off-Property Dissolved Phase Petroleum Pollution – 8 Years (Johnson and Eggers Report, Page 16).

Previous cleanup dates in the MVT CAO were rescinded because they were determined not to be technically feasible. Regional Board staff agrees with Drs. Johnson and Eggers that the cleanup dates proposed in the tentative CAO are appropriate and can be achieved by the Dischargers.

**Directive 3:** By **March 31, 2005**, the Dischargers must prevent any further migration of groundwater pollution beyond the discharger's property. If the on-property pollution appears to be migrating beyond the discharger's property due to the failure or inadequacy of the existing containment system, the Dischargers must notify the Regional Board within **24 hours** of their determination and immediately implement additional interim remedial actions to achieve full containment of the on-property pollution. Written documentation on any additional interim remedial action shall be provided within to the Regional Board within 30-days of implementation of those actions.

**Basis:** The Dischargers have installed a property boundary groundwater extraction system that is intended to contain the on-property pollution and prevent further migration of the existing pollution to off-property areas. To ensure this system is containing the on-property pollution, it is necessary to have the dischargers operate the extraction system as proposed and notify the Regional Board of any changes to the operation of the system in a timely manner.

**Directive 4:** "By **September 9, 2005**, the Dischargers shall provide the Regional Board with a technical report that contains the following minimum elements:

- a.) A synthesis of results from all previous investigation of the on-property discharge(s) of fuel related pollutants from the bulk fuel conveyance and storage operations at the MVT. This information shall also be used to develop/update a Site Conceptual Model (SCM) for pollution located within the property boundaries of the MVT.
- b.) A feasibility study (FS) of alternatives to cleanup and abate the effects from pollutants discharged from the operations at the MVT.

- c.) Identification of Dischargers' preferred cleanup and abatement method(s) and any potential impacts to the groundwater from the proposed method(s) upon the cleanup and abatement of wastes beyond MVT.
- d.) Proposed schedule for timely cleanup of on-property environmental pollution. The proposed cleanup method(s) must address liquid, vapor, and dissolved phase petroleum hydrocarbon pollutants in the soil and groundwater.
- e.) A monitoring and reporting program capable of assessing the effectiveness and progress of the Dischargers' cleanup and abatement at MVT."

**Basis:** This directive will require the Dischargers to evaluate remedial alternatives and propose a cleanup plan for the on-property pollution at MVT. The tentative Addendum requires the Dischargers to contain the on-property pollution. However, to protect the designated beneficial uses of the groundwater a plan to effectively cleanup and abate the on-property pollution must be developed and implemented at the MVT property. The required technical report will propose a cleanup plan for the on-property pollution and a program to monitor and report upon the progress of cleanup and abatement of on-property groundwater pollution.

**Directive 5:** The Dischargers shall submit a workplan that describe the findings of an investigation of the need for additional soil vapor extraction wells located in the off-property source zone, especially in the areas along San Diego Mission Road, the area west of RW-31, RW-32, and RW-33, and the area west of RW-3. This workplan must also include plans to evaluate the spatial density of the soil gas monitoring points and ensure adequate coverage has been achieved. Any additional vapor extraction wells proposed should be designed to maximize flow and be directed at deeper portion of target zone within the soils exposed by dewatering. The Dischargers must provide the workplan to the Regional Board by **July 13, 2005**.

**Basis:** Directive 5 asks for a workplan to identify the inadequacies of the current soil remediation system. Drs. Johnson and Egger expressed concern regarding the coverage of the soil remediation system in their report (Johnson and Eggers, Pages 6-7). The information provided by the dischargers in the workplan will identify weaknesses in the remediation system and propose the necessary modification(s) to correct those weaknesses.

**Directive 6:** "The Dischargers shall conduct a soil investigation to define the vertical extent of petroleum pollutants in the subsurface soils beyond MVT and provide a complete technical report to the Regional Board by July 29, 2005. Soil sampling should include TPH analysis, with a reporting of the TPH composition by carbon number ranges (e.g., % of TPH in <C4, C4-C6, etc. ranges) and results from leachability testing (using Synthetic Precipitation and Leaching Procedure – SPLP, EPA Method 1312) of soil core samples to provide remedial soil cleanup levels that will be used to ensure improvements to groundwater pollution through time. Results

of this assessment should be combined with existing data from soil cores and CPT/LIF to verify the necessary drawdown of groundwater elevation needed to expose residual LNAPL in the soil. By **July 29, 2005**, the Dischargers shall provide the Regional Board with a complete soil investigation report.”

**Basis:** Directive 6 requires the Dischargers to conduct a soil investigation to define the extent of the LNAPL in the subsurface as well as collect a base line sample of the leaching potential of the LNAPL in the soil to the groundwater. The information collected will be used to ensure the remediation and monitoring systems are properly constructed and operated.

**Directive 7:** The Dischargers shall revise and update or replace the existing Mission Valley Terminal Corrective Action Plan (CAP) dated October 29, 1999. The updated CAP must address the cleanup and abatement of pollution located beyond MVT by including the following elements: a comprehensive synthesis of results from investigations of current site conditions, selected cleanup methods, performance metrics, cleanup milestones, and all contingency plans required in this Order. The Dischargers shall provide the Regional Board with a complete revised/replacement CAP in electronic and paper format by **September 9, 2005**.

**Basis:** Directive 7 requires that the Dischargers submit an updated Corrective Action Plan (CAP). The current CAP was drafted in 1999 and it must be revised to include the performance metrics and compliance dates in the tentative Addendum, recent improvements to the remediation system, and the current operation requirements for containment and cleanup of the pollution.

**Directive 8:** “The Dischargers must develop a Drinking Water Well Protection Contingency Plan (Contingency Plan) for the City of San Diego groundwater production wells. This Plan must include all of the following minimum elements:

- a. A groundwater monitoring well network to detect pollution that could impact the groundwater production wells.
- b. Active interim remediation methods that will be implemented should the monitoring network provide evidence that the pollution could disrupt production of potable water supplies from the City’s wells.
- c. A plan to treat (*e.g.*, wellhead treatment) or replace the groundwater polluted by the discharger that would have been used for drinking water by the City.

The Regional Board must receive the Contingency Plan **within 60 days** of the Discharger being notified by the City (or any other individual or party) that a public water supply well has been installed downgradient of the discharger’s pollution. The Discharger shall provide a copy of the written notice to the Regional Board **within 10 calendar days** of receipt from the City.” **Basis:** Dischargers may be required to provide the Regional Board with a “Water Replacement Plan”

under the authority of Water Code section 13304(h). Additional site-specific rationale for this Directive is provided in the explanation of Finding No. 6 above.

## **STAFF RECOMMENDATION**

The Regional Board staff recommends adoption of tentative Addendum No. 5 to Order No. 92-01.

## **LIST OF REFERENCE DOCUMENTS**

The following documents are included in the Regional Board file and form the basis for tentative Addendum No. 5 to CAO 92-01:

- A. San Diego RWQCB's Order Nos. 92-01 and Addenda (EOSR Supporting Document No. 6) and Time Schedule Order R9-2002-0042 for Mission Valley Terminal (available on the Regional Board web page at: <http://www.waterboards.ca.gov/sandiego/orders/orders-02.html>).
- B. Final Summary Report Time Schedule Order R9-2002-0042, Prepared by LFR Levine-Fricke for SFPP, L.P., Operating Partner of Kinder Morgan Energy Partners, L.P. (available on the Regional Board web page at: <http://www.waterboards.ca.gov/sandiego/misc/MVT/mvt.html>).
- C. Comments regarding the Mission Valley Terminal Remediation Activities and Potential Cleanup Timeline, Prepared by Dr. Paul C. Johnson, Arizona State University and Dr. Margaret R. Eggers, Eggers Environmental, Inc. January 7, 2005 (see EOSR Supporting Document No. 4).